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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,894	03/19/2004	Edward P. Browne	PO-8155/MD-04-18	8194
157 7590 03/29/2010 BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205			EXAMINER FEELY, MICHAEL J	
			ART UNIT 1796	PAPER NUMBER
			NOTIFICATION DATE 03/29/2010	DELIVERY MODE ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte EDWARD P. BROWNE

Appeal 2009-005339
Application 10/804,894
Technology Center 1700

Decided: March 25, 2010

Before MICHAEL P. COLAIANNI, CATHERINE Q. TIMM, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1-16, 18, 19, 33, and 34 (Amended Appeal Brief filed July 10, 2008, hereinafter “App. Br.,” at 3; Final Office Action mailed June 14, 2007). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

STATEMENT OF THE CASE

Appellants’ invention relates to a process for polyoxyalkylation of a starter to produce a polyether product (Specification, hereinafter “Spec.,” 7, ll. 18-26; claim 1). According to Appellant, the addition of acid over that required for neutralization of the basicity of a low molecular weight starter has a positive effect allowing the reaction to proceed to completion (Spec. at 7, ll. 3-5 and 15-16).

Representative claim 1 is reproduced below:

1. A process for the polyoxyalkylation of a starter comprising:
establishing oxyalkylation conditions in an oxyalkylation reactor in the presence of a double metal cyanide (DMC) catalyst;
continuously introducing into the reactor at least one alkylene oxide and a low molecular weight starter acidified with at least one of an inorganic protic mineral acid and an organic acid, wherein the acid comprises greater than 100 ppm, based on the weight of the starter; and
recovering an oxyalkylated low molecular weight starter polyether product having a number average molecular weight of about 260 Daltons (Da) to about 2,500 Da.

(App. Br. 13; Claims App’x.)

The Examiner relied upon the following references in rejecting the subject matter on appeal (Examiner's Answer mailed October 14, 2008, hereinafter "Ans.," 2):

McDaniel	6,077,978	June 20, 2000
O'Connor	6,359,101 B1	Mar. 19, 2002

The Examiner rejected the claims as follows:

- I. Claims 1-10, 13-16, 18, 19, 33, and 34 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under § 103(a) as unpatentable over O'Connor (Ans. 3-6);
- II. Claims 1-16, 18, 19, 33, and 34 under 35 U.S.C. § 103(a) as unpatentable over McDaniel (Ans. 6-9); and
- III. Claims 11 and 12 under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of O'Connor and McDaniel (Ans. 9-10).

PRINCIPLES OF LAW

"To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).

While *KSR* explains that an obviousness "analysis need not seek out

precise [prior art] teachings,” it nonetheless did not dispense with the need for evaluating the evidence to determine whether a person having ordinary skill in the art would have had “an apparent reason to combine the known elements in the fashion claimed.” *Id.* at 418.

Rejections I and III

ISSUE

Did the Examiner err in finding that O’Connor anticipates a process for polyoxyalkylation of a starter to obtain an oxyalkylated low molecular weight starter polyether product having a number average molecular weight of about 260 to about 2,500 Daltons, as recited in claim 1?

FINDING OF FACT (“FF”)

1. O’Connor discloses that triols are difficult to initiate, and that while glycerin is a readily available starter for triol production, *inter alia*, higher catalyst levels “seem to be required to achieve easy PO [propylene oxide] addition to low molecular weight triol starters” (col. 11:44-55).

ANALYSIS

Appellant states that the claims stand or fall together (App. Br. 4). Accordingly, we select claim 1 as representative and confine our discussion to this selected claim. *See* 37 C.F.R. § 41.37(c)(1)(vii).

With respect to Rejection I, the Examiner found that O’Connor discloses the process as claimed (Ans. 3-5).

Appellant counters that the Examiner failed to sufficiently point out where O'Connor discloses the limitations of the claimed process (App. Br. 6-7). We find Appellant's argument unpersuasive because it does not specifically address the findings that the Examiner made with respect to anticipation (Ans. 3-5). That is, Appellant has not explained which of the claimed process limitations are not described in O'Connor as found by the Examiner.

Furthermore, Appellant argues that "[i]n contradistinction [to the prior art process], the instantly claimed invention is directed to a procedure that will allow the use of glycerin and other starters having hydroxyl groups in close proximity to be used in a safer manner in a larger reactor, thus providing a commercially viable process" (App. Br. 8). Appellant's argument is unpersuasive. First, the Examiner found that O'Connor discloses glycerin is a suitable starter under appropriate conditions, albeit non-preferred, (Ans. 11; FF 1), and Appellant has not presented any persuasive evidence that the Examiner's finding was in error. Furthermore, Appellant's arguments are to no avail because the claimed invention is not limited to a process that uses glycerin and starters having hydroxyl groups in close proximity in large reactor sizes in a commercial process. Thus, we affirm the Examiner's anticipation rejection.

For the same reasons as discussed above, the subject matter of claim 1 would also have been obvious to a person of ordinary skill in the art in view of O'Connor. See *In re Fracalossi*, 681 F.2d, 792, 794 (CCPA 1982) ("[E]vidence establishing lack of all novelty in the claimed invention necessarily evidences obviousness.").

With respect to Rejection III, Appellant does not specifically address the Examiner's rejection combining the teachings of O'Connor and McDaniel (App. Br. 12). Rather, Appellant argues, *inter alia*, that O'Connor fails to teach or suggest the claimed invention and relies on the same arguments as submitted in Rejection I (*id.*). We find Appellant's argument unpersuasive for the same reasons as discussed above. Accordingly, we uphold the Examiner's decision to reject claims 11 and 12 as unpatentable over O'Connor and McDaniel.

Rejection II ISSUE

Did the Examiner err in concluding that McDaniel would have rendered obvious to one of ordinary skill in the art a process for the polyoxyalkylation of a starter comprising introducing a low molecular weight starter that is acidified with acid greater than 100 ppm, based on the weight of the starter, as required in independent claims 1 and 33?

ADDITIONAL FINDINGS OF FACT ("FF")

2. McDaniel discloses that it is known that bases deactivate DMC catalysts and that "[t]he preferred method of elimination of basic substances is by addition of acid" (col. 5, ll. 22-23).
3. McDaniel further discloses that the "addition of acid is a preferable manner of preventing deactivation of DMC catalysts during oxyalkylation of glycerine DMC catalysis" (col. 5, ll. 15-17).

4. McDaniel discloses that “[i]n general, less than 100 ppm acid based on total low molecular weight starter need be added, preferably about 5 ppm to 50 ppm, and most preferably about 10 ppm to 30 ppm” (col. 6, ll. 55-58).

ANALYSIS

The Examiner found that McDaniel discloses a process for polyoxyalkylation of a starter with a double metal cyanide (DMC) catalyst including continuously introducing at least one alkylene oxide and an low molecular weight starter with acid (Ans. 6). Furthermore, the Examiner found that McDaniel describes adding acid in an amount generally less than 100 ppm based on total low molecular weight starter “to prevent de-activation of the DMC catalyst” (Ans. 7-8; FF 3-4). While the Examiner acknowledged that McDaniel does not disclose the claimed acid concentration (i.e., greater than 100 ppm, based on the weight of the starter), the Examiner concluded that “it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the acid concentration, by providing the instantly claimed amount of acid” (Ans. 7-8). In addition, the Examiner reasoned that, because the claimed range of acid concentration abuts the prior art range, even without touching or overlap, the claimed and prior art ranges are close enough that a prima facie case of obviousness exists (Ans. 8-9 and 11).

Appellant contends that McDaniel describes adding acid to neutralize alkaline residues and provides no teaching or guidance to one of ordinary skill in the art to add acid in the claimed amount (App. Br. 10).

We agree with Appellant. McDaniel describes preferred acid concentrations that are notably less than 100 ppm (FF 4). Thus, contrary to the Examiner's position, McDaniel's preferred acid concentrations suggest optimizing acid concentration to values that are appreciably less than 100 ppm. Accordingly, McDaniel would not have suggested to one of ordinary skill in the art acid concentrations greater than 100 ppm. Therefore, we do not uphold the Examiner's decision to reject the claimed subject matter over McDaniel.

We do not reach Appellant's arguments directed to obtaining a synergism between the DMC catalyst and the acid addition in excess of neutralization (App. Br. 11).

CONCLUSION

Rejections I and III

The Examiner did not err in finding that O'Connor anticipates a process for polyoxyalkylation of a starter to obtain an oxyalkylated low molecular weight starter polyether product having a number average molecular weight of about 260 to about 2,500 Daltons, as recited in claim 1.

Rejection II

The Examiner erred in concluding that McDaniel renders obvious to one of ordinary skill in the art a process for the polyoxyalkylation of a starter comprising introducing a low molecular weight starter that is acidified with acid greater than 100 ppm, based on the weight of the starter, as required in independent claims 1 and 33.

DECISION

We affirm the Examiner's decision to reject:

claims 1-10, 13-16, 18, 19, 33, and 34 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under § 103(a) as unpatentable over O'Connor; and

claims 11 and 12 under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of O'Connor and McDaniel

We reverse, however, the Examiner's decision to reject appealed claims 1-16, 18, 19, 33, and 34 under 35 U.S.C. § 103(a) as unpatentable over McDaniel.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

kmm

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